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# NAVAL POSTGRADUATE SCHOOL Monterey, California



## THESIS

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AN ANALYSIS OF THE MATERIAL RETURNS  
PROGRAM

by

Douglas R. Eades

December 1990

Thesis Advisor

Joseph G. San Miguel

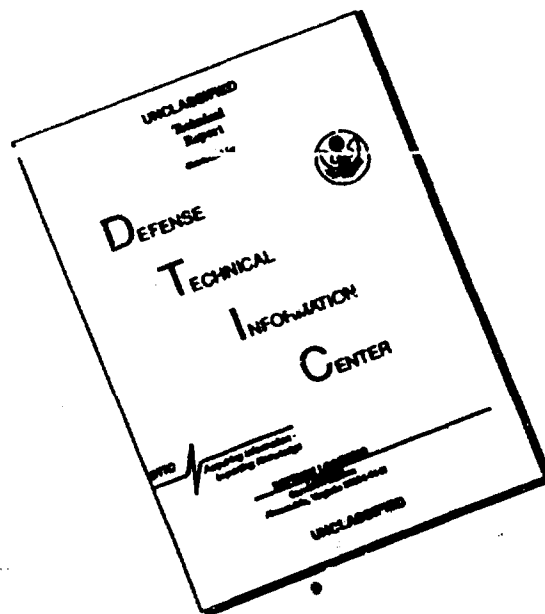
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An Analysis of the Material Returns Program

by

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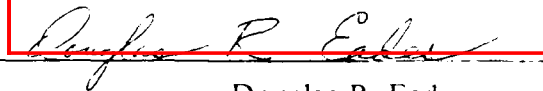
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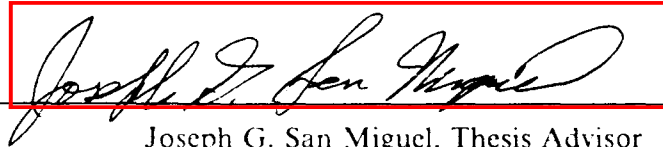
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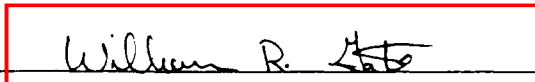


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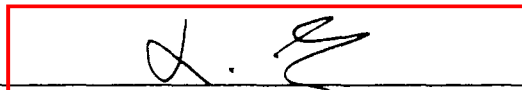
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## ABSTRACT

The volume of excess material is growing in virtually all of the Armed Services. A portion of this is "invisible" to the supply system and other potential users because it is still in the hands of the end-user. The management problem created by "holding" excess maybe due to disincentives for operational units to return material. This results from the complexity of the Material Returns Program and historically low rate of return experienced by many of the operational units.

This thesis evaluates the Material Returns Program from a fleet perspective, concentrating on documented issues and experiences. Results indicate that acceptable changes can be implemented that will provide the incentive for end-users to return excess material to the supply system.

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## I. INTRODUCTION

The procurement policy of the Department of Defense (DOD) has long focused on providing the operational forces with state of the art technology. The intent of the policy is to provide our "fighting forces" with a competitive edge in combat scenarios. However, this policy is not without its drawbacks. As a weapon system is replaced by a newer model, the older model, along with the repair part support, becomes "excess". The volume of excess material is growing in virtually all of the armed services. The Committee on the Budget, United States Senate, estimates as much as 30 percent of DOD spare parts inventory is excess [Ref. 1]. A portion of this is "invisible" to the supply system and other potential users because it is still in the hands of the end user. It is important that the DOD focus on effective methods of managing excess material due to the large capital investment involved. As material becomes "excess", it must be returned to the supply system where it will then become "visible" to potential users, thus preventing procurement of an item already in excess.

The responsibility for effective excess material management involves all levels of the DOD. Upper levels need to establish policy that will provide a sufficient incentive to operational units to return excess material and these units

need to aggressively pursue compliance with this policy. This thesis will address the current process in use by the U. S. Navy, The Material Returns Program (MRP), promulgated by NAVSUP P-437, "MILSTRIP/MILSTRAP." Overall policy concerning the reporting of excess assets is contained in Department of Defense Directive 4100.37, "Retention and Transfer of Material Assets."

The Material Returns Program is designed to provide procedures for reporting excess material in order to obtain maximum utilization of assets. These procedures should determine acceptability, amount of credit, and disposition of items reported [Ref. 2]. Excess material has been a long time problem in the U. S. Navy due to the disincentive for the operational units to return material. This is due to the complexity of the MRP process and the historical low rate of return experienced by many of the operating units. Furthermore, in the current period of decreasing DOD budgets, it has become extremely difficult for the operating units to maintain the required level of operational readiness with a lower funding level. In an attempt to alleviate this hardship, at least two Type Commanders (TYCOMs)<sup>1</sup> have developed and implemented programs specifically designed to

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<sup>1</sup>Commander Submarine Force U.S. Atlantic Fleet (COMSUBLANT) implemented the Submarine Redistribution and Temporary Storage program (SUBRATS) and Commander Submarine Force U.S. Pacific Fleet (COMSUBPAC) implemented COMSUBPACs' Program for Excess Redistribution (SUPER).

manage excess material. They are able to "save" money by: 1) holding their excess material and issuing it to other units of their command as needed, thus avoiding the cost of procuring the repair part through normal supply channels, and 2) selling it back to the supply system via the MRP program.

Numerous players are involved in the Material Returns Program. The end user (a Navy ship) turns in the material. The Naval Supply Center (NSC)/Contractor queries the Inventory Control Point/Item Manager (ICP/IM) and ships material to designated stock points as directed by the ICPs' response. The ICP/IM sends a credit response to the NSC/Contractor and, upon notification of receipt of material by the designated stock point, sends credit authorization to the Fleet Accounting and Disbursing Center (FAADC). FAADC transmits credit to the appropriate Type Commander. This process is lengthy, inflexible, and after initial turn-in of material, invisible to the end user. It will be further explained in Chapter II and Chapter IV.

The magnitude of the excess material problem is illustrated by a quote from a report on spare parts management developed by the Majority Staff Committee on the Budget for the Senate: "There is already an inventory of more than \$100 billion worth of spare parts, including more than \$30 billion worth of items which the Pentagon acknowledges as being

unrequired."<sup>2</sup> The majority of this material is a result of inappropriate procurement and is currently residing as "stock" in the various Department of Defense supply centers. Therefore, it is not subject to processing via the Material Returns Program. However, it does illustrate the intense scrutiny given spare parts management. Improvements in any facet of the management of spare parts should warrant consideration.

#### **A. RESEARCH OBJECTIVES**

The main objective is to improve the incentive for the operating commands to return excess material. The primary question of concern: "What improvements can be made in the Material Returns Program that will provide an incentive for fleet units to return excess material?" This can be achieved by reviewing five (5) sub-elements of the MRP and answering specific questions relating to each.

##### **1. Interfund Billing**

What are the advantages of the Interfund Billing vs. Intrafund Billing process as related to the MRP?

##### **2. Credit Returns Policy**

What improvements in the credit returns policy provide the necessary motivation for operating forces to aggressively pursue the return of excess material? What recommendations

---

<sup>2</sup>Further study is required in the area of valuation methods used for excess material (i.e. devalue or apply market value to aged material in excess).

should the Naval Supply Systems Command (NAVSUP) propose to the Office of the Secretary of Defense (OSD) to achieve these improvements?

### **3. Depot Level Repairable (DLR) Packaging**

Is there a cost savings achievable by improving DLR packaging? Minor tears in DLR packaging render the item not ready for issue (NRFI). This necessitates transportation costs to a verifying activity, cost of verification and repackaging, and cost of transportation back to a designated stock point. Are local procedures available to preclude this expense?

### **4. Carcass Credit**

What improvements can be made to improve the accuracy and timeliness of carcass credit processing?

### **5. Material Turned Into Stores (MTIS) Backlog**

What can be done to alleviate MTIS backlog at the Naval Supply Centers or contracted agencies? MTIS backlog is a contributing cause of the issues presented in Item 1. and Item 4. above.

## **B. SCOPE OF THE STUDY**

This thesis will concentrate on existing regulations and policies as well as current data (through FY90) and information compiled by the excess program managers of the Pacific and Atlantic Fleet Submarine Forces, Naval Supply Centers, and other parties officially assigned duties in the

"flow" of excess material through the Material Returns Program. Management decisions and actions taken to alleviate observed problems with the MRP, as well as future proposed actions will be included.

#### **C. LIMITATIONS**

The processing of excess material is accomplished by and affects every unit in the operational chain of command and those logistics support commands assigned material processing tasks. Time and financial resources preclude an in-depth analysis of excess material processing problems perceived by each unit. Therefore the study is confined to data compiled by the Pacific and Atlantic Fleet Submarine Forces and the Naval Supply Centers located at San Diego, CA, Oakland, CA, and Bremerton, WA. Observations from various other commands will be included to support identified problem areas. The recommendations for change resulting from this study will hopefully provide workable alternatives to a well-known, complex problem.

#### **D. ORGANIZATION**

Chapter I introduces the Material Returns Program and some of the complexities and observed problems involved in the processing of excess material via this program. The magnitude of the problem is presented as well as some of the critical questions that will hopefully be answered. In addition, the

objectives, scope, limitations, and organization are presented.

Chapter II discusses the philosophy and organization of the Material Returns Program and provides an insight to the operation of the program by reviewing applicable directives. In addition, general comments and data will be introduced that illustrate problems experienced by the fleet when processing excess material.

Chapter III addresses the research methodology used in conducting this study. Included is a discussion of the selected research plan, types of data obtained, the sources, and to what extent this data are considered a reliable representation of the overall system.

Chapter IV contains specific data compiled by the Pacific and Atlantic Fleet Submarine Force excess material program managers. This data include but are not limited to: excess material inventory levels, inventory dollar levels, rate of return on excess material in dollars and units, cost avoidance gains, MRP processing time, defective DLR packaging statistics, DLR credit policy issues, etc. Alternatives to improve known problems and plans that may be currently in process will also be discussed. Recommendations for improvement will follow each subsection.

Chapter V summarizes the results of this study and combines specific recommendations for the improvements

presented in Chapter IV that will help reduce the excess material currently residing in the fleet.



## II. BACKGROUND

For many years repair parts management has been the topic of debate between the Department of Defense and Congressional members seeking to trim the budget. The debate concerns the ability to maintain a high degree of operational readiness by ensuring weapons platforms are outfitted with state-of-the-art equipment at an acceptable cost to the taxpayer.

In an attempt to obtain the highest degree of operational readiness at the minimum cost, numerous models have been developed to assist in the procurement and management of weapon system repair parts. These models are not the subject of this thesis, but could be a topic of further research. It is sufficient to say that the models are difficult and complex. Procurement is an imperfect process even with the best of intentions and the most reliable data. Ideally, the last available spare part would be consumed just prior to the retirement of the supported item due to obsolescence. This is seldom the case. Usually there are numerous repair parts which, for their original intended purpose, become "excess". Excess spare parts will be defined as those repair parts that are no longer required by the end user for whom they were initially procured. In addition to the two reasons for excess material previously mentioned (inadequacies of the procurement

process and equipment obsolescence), a third is the decommissioning of a ship or squadron.

There are several factors which support this reasoning. First, predicting failure rates for new equipment is extremely difficult due to the limited data available at the time of procurement. Furthermore, the "cost" of not having sufficient repair part support available may be extremely high, depending on the operational tempo at the time. Therefore, the prudent approach would appear to be the assurance of having adequate repair part support available at the time of need. This assurance "guarantees" that there will be some level of excess repair part support still on the shelf when the equipment is replaced/retired due to obsolescence. Second, the rate of technological advancement is unpredictable. In many cases, new technology is available prior to old equipment wearing out. Therefore, keeping pace with leading edge technology will require replacement of equipment that may have several years of physical "life" remaining (with several years of repair part support still on the shelf). Third, current DOD budget decreases have called for accelerated decommissioning plans for several classes of naval ships. Decommissionings result in the "excessing" of all on-board repair parts (OBRPs).

The previous paragraphs help explain the existence of excess, however the processing of this excess is the topic of

concern which will be addressed in the remainder of this thesis.

The Department of Defense has provided direction on the retention and transfer of material assets which stipulates general guidelines for the return of retail stock [Ref. 3]. The Navy has expounded on this process by implementing the Material Returns Program, management of which is contained in NAVSUP Pub 437, "MILSTRIP/MILSTRAP." The questions to be discussed in later chapters are: "Is this an effective program?" and "Does it provide the incentive for the fleet to turn in excess material?" The remainder of this chapter will be dedicated to the discussion of the MRP and five (5) sub-elements of the MRP. They will be presented in the following order:

1. Material Returns Program
2. Interfund Billing
3. Credit Returns Policy
4. Depot Level Repairable (DLR) Packaging
5. Carcass Credit
6. Material Turned Into Stores (MTIS) Backlog

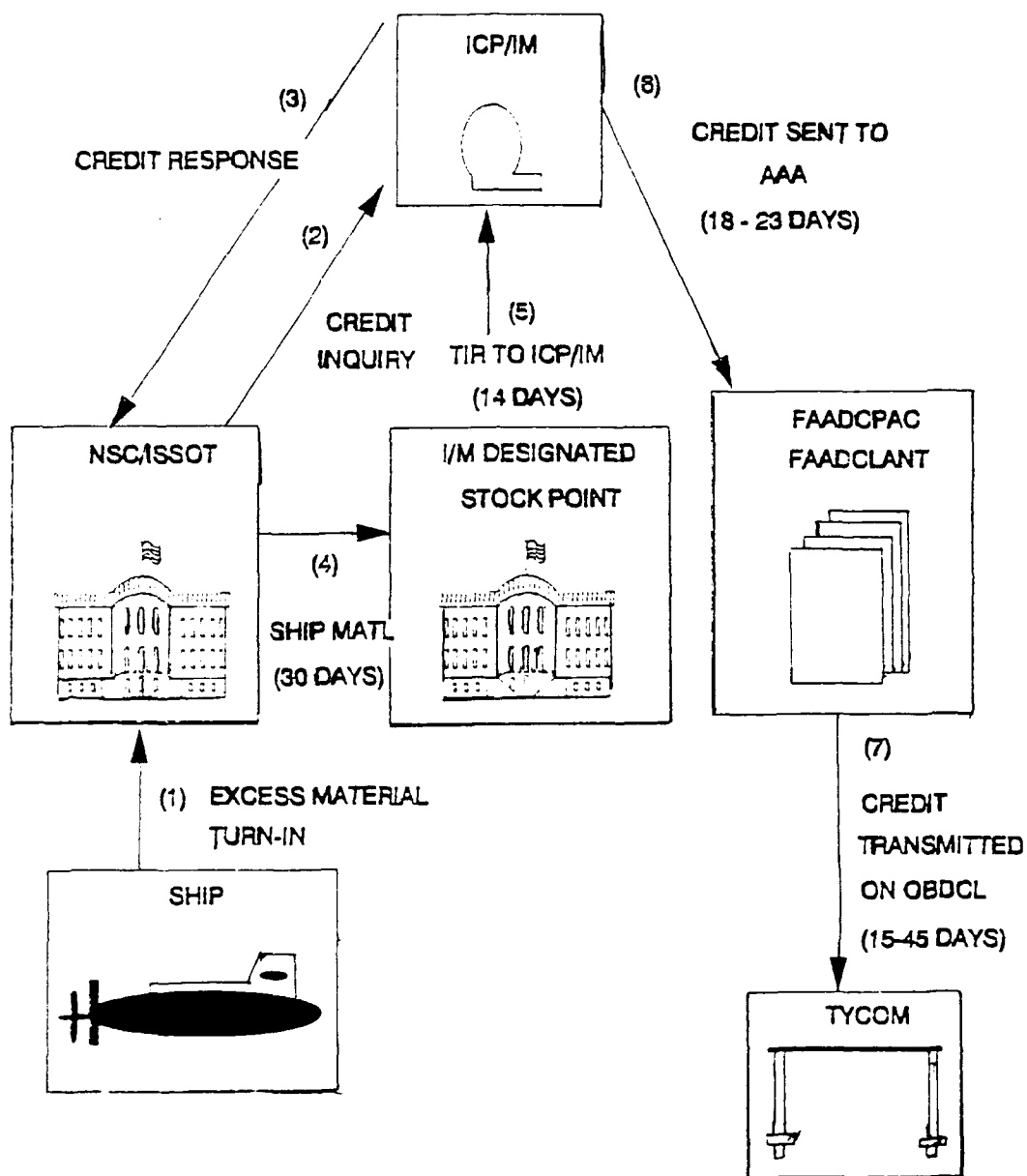
#### **A. THE MATERIAL RETURNS PROGRAM**

NAVSUP PUB 437, "MILSTRIP/MILSTRAP" Section 02155 contains procedures for all DOD activities and civil agencies offering or returning material to a Military Service Inventory Control

Point, DOD Integrated Material Manager or the General Services Administration (GSA).

These procedures provide for reporting of excess and redistributable material from CONUS and overseas activities to an Inventory Control Point/Integrated Material Manager (ICP/IMM) and procedures for processing customer reports of excess to obtain maximum utilization of assets by determining acceptability, amount of credit and providing disposition of items reported. Credit for material returns is granted on the basis of receipt and the classification documented by the consignee. These procedures also establish the necessary controls to ensure timely processing of related transactions and provide for the automatic return of material under specified conditions. [Ref. 1]

This process is complex and often lengthy (see Figure 1). An important point to note in this illustration is that the ship loses "visibility" of the material once it is turned into the stock point/contractor (i.e., the process is not closed loop). Therefore, the unit who is most concerned with reaping the financial benefit for their Type Commander, is no longer a player in the process. Processing time lines will be addressed in a following section (Item F.) of this chapter. A more detailed illustration of the complexity of the documentation process is illustrated by Figure 2. It is not within the scope of this thesis to interpret specific Document Identifier Codes (DICs) used in this process. However, a detailed explanation and identification of the DICs are contained in Reference 1.



**MRP PROCESSING TIME = TRANSMIT TIME FROM SHIP + MTIS BACKLOG + 120 DAYS**

Figure 1. MRP Process

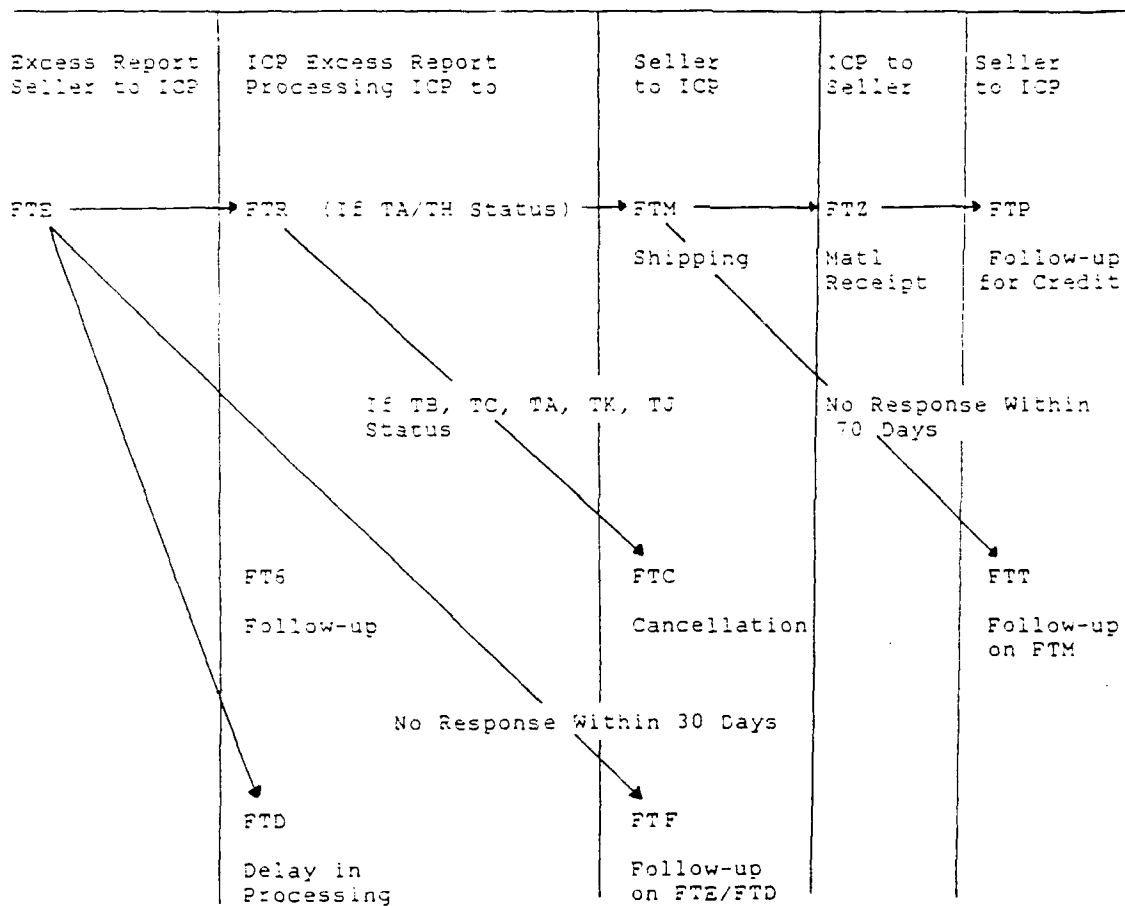


Figure 2. MRP Documentation Flow Diagram

## **B. INTERFUND BILLING**

There are two methods of billing for issues of material from one activity to another: the "DOD interfund billing system" is used for all reimbursable issues of Navy material to other DOD activities; issues of Navy material to Navy customers are normally billed via the "intra-Navy billing system." The major differences between the two systems are summarized as follows:

The interfund system uses formats, data elements and coding structures which are standard for all participants, and allows automated transmission of billings, requests for adjustment and subsequent adjustment data via the Defense Automatic Addressing Systems Office (DAASO). The formats used in the intra-Navy billing system, although standard, cannot be transmitted via DAASO, and the Navy system does not include a method, either manual or mechanized, to request and obtain corrections of billing errors. [Ref. 4]

The Interfund Billing procedures used to bill for all reimbursable issues of Navy Stores Account (NSA) material are contained in Reference 4. The system applicable in any given situation is determined by the activity having cognizance over the material in question (i.e., the Inventory Control Point). For example, credits for Defense Logistics Agency (DLA) managed material are processed via the interfund billing system and are posted to the fiscal year in which they are processed and registered by the Fleet Accounting And Disbursing Center. In contrast, credits for material managed by the Navy Ships Parts Control Center (SPCC) are processed

via the intra-Navy billing process and are posted to the fiscal year in which they are registered by SPCC.

Simply stated, once credit is authorized by the appropriate ICP, the ICP generates a credit bill which is forwarded to the appropriate FAADC. When the credit bill is processed by the FAADC, credit is given to the appropriate Type Commander via the monthly Operating Budget Detail Credit List. Based on processing delays, it is feasible that credit may be granted by the ICP, but not become available to the Type Commander in time to obligate prior to the expiration of the funds at the end of the fiscal year (estimated processing time for SPCC cognizance material will be addressed in Item F. of this chapter).

This latter statement can be a double penalty in that the Navy Stock Fund has already reduced its assets by the amount of credit granted, yet, due to the processing delay, the Type Commander does not receive the funds in the fiscal year granted. Thus, neither receive the benefit of the funds.

#### **C. CREDIT RETURNS POLICY**

Policy regarding the granting of credit for excess assets is contained in Department of Defense Directive 4100.37, "Retention and Transfer of Material Assets". In general, wholesale inventory managers analyze reports of excess assets submitted by retail activities and make decisions regarding the disposition of these assets (i.e., retain or dispose). Numerous factors, both economic and non-economic, are



considered when making the retention decision. Components within the DOD are required to develop and implement their own decision models based on economic and non-economic factors. These models should be suitable for use by the applicable inventory manager.

Decision model factors are categorized into three broad areas: 1) Diminishing Manufacturing Resources, 2) Economic Factors and 3) Non-economic Factors. DOD defines these factors as follows:

1. Diminishing Manufacturing Sources. The first criterion to evaluate is based on a readiness consideration, namely diminishing sources of supply for active items in the DOD inventory. Returns should be accepted for items that have been approved for life-of-type buys.

2. Economic Factors. It is necessary to determine if a proposed return should be accepted based on economic considerations. If the stock position of the item being considered for return is below the AFAO<sup>3</sup>, and if the marginal unit return cost (i.e., cost to return to depot minus cost to dispose) is less than the unit reprocurement price, the return should be accepted. The item should not normally be authorized for return if on a per item basis it costs more than it would cost to reprocure. However, a return would still be accepted if the non-economic criteria, explained in subsection B.3., below, apply.

3. Noneconomic Factors.

a. Weapon Systems. In accordance with the policy specified in paragraph D.1.e. of this Directive items applicable to active weapon systems used by U.S. forces normally should be returned.

b. Backorders. Due to the mathematical aspects of economic return methodologies, an item could have a stock position exceeding its authorized economic return limit but still have outstanding backorders. This situation could result if a large portion of an item's assets were

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<sup>3</sup>Approved Force Acquisition Objective.

due-in rather than on-hand. Therefore, returns for items with outstanding backorders should be accepted.

c. War reserves. Returns for items authorized a war reserve level should be accepted if the war reserve stock requirements are not satisfied by the item's existing wholesale assets.

d. Leadtimes. Economic return models normally assume that an item can be reprocured within an acceptable timeframe. In cases where it is expected that the leadtime will be beyond an acceptable period, reported items should be returned.

e. Demand History. If the economic return model does not address constant or increasing demand, the demand history criterion attempts to capture returns for these kinds of items. By comparing the item's current demand to its quarterly forecasted demand times a growth factor, inventory managers will be in a position to determine if increasing demand activity would justify accepting the return.

f. Inventory Managers' Override. Although models should be flexible, they will not be able to consider properly all possible conditions. Inventory managers should have sufficient responsibility related to the return of items to override the above criteria. [Ref.3]

As mentioned earlier, this thesis is not intended to examine the various models used by the item managers. That remains for others to research. What is of importance here is whether this policy provides the necessary incentive for the fleet to aggressively pursue the return of material assets. The implementation of specific programs to manage and store excess material by the Pacific and Atlantic Fleet Submarine Forces suggest the incentive is not sufficient. Additional data and observations concerning this issue will be discussed in detail in following chapters.

#### D. DEPOT LEVEL REPAIRABLE (DLR) PACKAGING

Packaging requirements are delineated in various military specifications that are determined during the procurement process. These specifications may call for three (3) multiple levels of packaging (shipping container, quantity unit pack, and the inner barrier bag) to ensure DLR protection. The durability of the inner packaging is of utmost importance to fleet units for two reasons: although Military Standards (MIL-STDs) call for submarines to use stowage at the quantity unit pack, the limited stowage space on submarines, often necessitates the removal of all exterior packaging, except the inner wrap, so that the submarine may accommodate the required allowance of material on board; and any perforation of the interior wrap renders the DLR not-ready-for-issue (NRFI).

In the context of the MRP, this second issue can be a very expensive factor. If the unit is declared NRFI, the best that can be achieved by the Type Commander is "carcass value credit" (i.e., the difference between standard and net price) [Ref. 2]. Improper handling of DLR's in itself is not excusable. However, improvements in the durability of packaging would help prevent inadvertent perforations. These issues are well-known and some actions have been taken to alleviate the problem. For example, there is a new Military

Standard under consideration which contains the following requirements: [Ref. 5]

- a. Fire-retardant packaging materials
- b. Transparent and minimum/reduced cube unit protection
- c. Sensitive electronic item protection
- d. Exclusions
- e. Asbestos item protection
- f. Repair parts (nonrepairable/consumable) and spares (repairable) protection
- g. Shipment markings
- h. Quality assurance provisions

Also, some TYCOMs are placing an emphasis on guidance and training for DLR handling as well as including a review of DLRs during routine Supply Management Inspections (SMIs).

The implications of DLR packaging will be discussed in more detail in Chapter IV.

#### **E. CARCASS CREDIT**

Not-Ready-For-Issue (NRFI) DLRs are returned to the Advanced Traceability and Control (ATAC) hub in accordance with instructions contained in NL/SUP Pub P-485, "Afloat Supply Procedures"; NAVSUP Pub P-545, "Navy Stock Fund Depot Level Repairables (NSF-DLR) Procedures Desk Guide"; and NAVSUP P-437, "MILSTRIP/MILSTRAP". Additional guidance has been provided in NAVSUP Newsletter 89-1. Unfortunately, the guidance is contradictory in regards to who is responsible for

completing certain data blocks of the DD 1348-1 turn-in document. In addition, the inconsistent use of application "R"<sup>4</sup> of the Uniform Automated Data Processing System (UADPS) has further exacerbated the situation. This has resulted in credit not being granted for material when processed through the Uniform Inventory Control Point (UICP) credit interrogation module B015 application program. This process is under review and is being corrected, therefore it may be a solved problem upon completion of this thesis.

#### **F. MATERIAL TURNED INTO STORES (MTIS) BACKLOG**

Guidance for MTIS is provided in NAVSUPINST 4440.157. However, time constraints for material processing are not included. Delays in processing may result in expiration of authorized credit. This may be a source of the problems identified in the Interfund Billing process and the Carcass Credit process identified above. For SPCC cognizance material, the estimated processing timeline is illustrated in Figure 3. Specific observations will be discussed in the analysis chapter of this thesis.

In summary, the sub-elements of the MRP addressed above are considered to be essential factors in the successful management of excess material. Correcting any one of the

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<sup>4</sup>If the Stock Point is using application "R" for processing material, when a carcass is determined to be NRFI, and the status of the material is changed from an "A" condition (RFI) to an NRFI status, the required data blocks referred to above will be completed automatically.

identified problems will be beneficial, however, they are all interrelated, so to be thorough and effective, all should be addressed. It should also be noted that the issues identified in this chapter are not new, they are issues which, given the current decrease in the DOD budget, have warranted increased scrutiny from the fleet perspective.

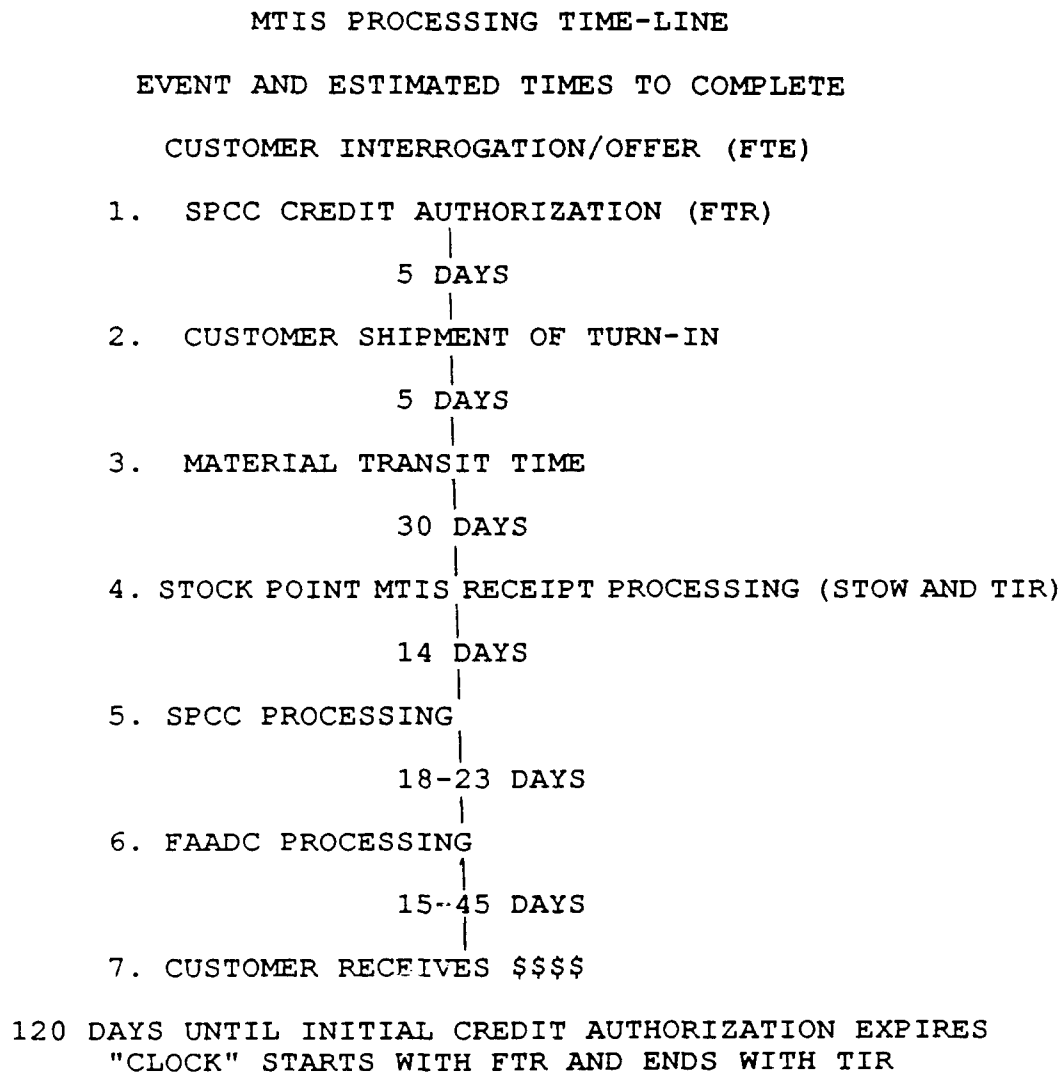


Figure 3. MTIS Processing Time-line

### III. METHODOLOGY

The attention given to the effective management of spare parts within the Department of Defense in recent years coupled with a declining defense budget has resulted in an increased focus on the Material Returns Program as a helpful solution to both problems. For instance, both the Pacific and Atlantic Fleet Submarine Forces have established specific programs for the management of excess material. The Pacific Fleet Polaris Material Office (PMOPAC) operates COMSUBPAC's Program for Excess Redistribution (SUPER) and the Atlantic Fleet Polaris Material Office (PMOLANT) operates the Submarine Redistribution and Temporary Storage program (SUBRATS). Each program is designed as a centralized control point of the "excess material" generated by all the operating units assigned to the respective Type Commander. The data presented in this thesis were generated and compiled by these programs.

Research methods employed in this analysis include: personal experience, field research, documentation review and telephone interviews.

These methods were chosen for several reasons. Much of the information was gathered through personal observations. Additional information was well documented and readily available from the excess material programs. "SUPER" and "SUBRATS" are relatively new programs which have received



close monitoring by higher authority. Telephone interviews were conducted with other commands involved in the MRP in order to substantiate and verify information provided by the excess material programs. Data were obtained from "point papers" that were prepared and submitted by various commands as topics of interest to be discussed during the annual Fleet Industrial Support Conference (FISC). However, only data relevant to the Material Returns Program were solicited from these papers. Much of the information is well documented by other commands in the MRP processing chain. Finally, Department of Defense and Naval publications, directives, and instructions, governing facets of the Material Returns Program are considered to be matters of fact.

Despite these advantages, this research has a limited scope<sup>5</sup> because there was limited time and financial support to conduct an in-depth detailed analysis of such a complex process. Recommendations based on information gathered from limited sources may skew the overall "reasonableness" of the conclusions.

The decision to analyze and research the MRP was based on personal experience. I recognized the need for increased attention to excess material while serving as the Supply Officer aboard a nuclear powered submarine undergoing overhaul at the Charleston Naval Shipyard. My subsequent tour was on

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<sup>5</sup>Only West Coast Naval Supply Centers were solicited for information concerning the MRP and only documentation compiled by "SUPER" and "SUBRATS" were used in the analysis.

the staff of PMOPAC. During this tour, PMOPAC initiated and implemented "SUPER". The organizational structure of PMOPAC was changed to incorporate a department dedicated solely to the management of excess material. The problems identified in this thesis are those observed personally while processing excess material via the MRP. Data generated subsequent to my transfer was collected by field research.

Some problems identified are in the process of being corrected at this time. Reasonable effort was expended to ascertain any proposed changes to the program and to recognize such in Chapters II and IV of this thesis.

The analysis of this data is based on existing guidelines versus observed processes. Recommendations for alternative procedures, which may improve the Material Returns Program and provide the incentive for the "fleet" to return excess material are also based on data acquired in this study.

In summary, methods used to analyze the MRP were driven by fleet concerns (bottom-up approach) versus an alternate view such as a policy analysis (top-down approach). The intent is to identify alternatives to existing policy that will provide an acceptable solution, for all parties concerned, to the problems associated with the Material Returns Program.

#### IV. ANALYSIS/DISCUSSION/RECOMMENDATIONS

##### A. OVERVIEW

The decade of the eighties began with an unprecedented growth in the peacetime defense budget. Many new weapons systems and accompanying repair part support were procured during this period. However, by 1985 the growth period subsided and, in real terms, the defense budget declined throughout the remainder of the decade.

The declining budget has made it increasingly difficult for the "fleet" to maintain the level of operational readiness required to accomplish their mission. Therefore it is extremely important that operational units manage their resources effectively. The Atlantic and Pacific Fleet Submarine Forces have both implemented programs to manage excess material in order to conserve financial resources. The Atlantic Fleet program is called "Submarine Redistribution and Temporary Storage" (SUBRATS) and is managed by the Atlantic Fleet Polaris Material Office (PMOLANT). The Pacific Fleet program is called "COMSUBPAC's Program for Excess Redistribution" (SUPER) and is managed by the Pacific Fleet Polaris Material Office (PMOPAC).

At the end of fiscal year 1990 SUBRATS maintained an inventory of 75,586 line items with an extended value of \$83,217,451 [Ref. 6]. SUPER maintained an inventory of 5,951

line items with an extended value of \$16,500,000. PMOLANT and PMOPAC conserve financial resources by "holding" excess material for future issuance to the operating forces thus avoiding the cost of requisitioning the material from the supply system. They also "sell" excess material back to the supply system via the Material Returns Program. It is the latter that will be the focus of the following analysis. The various subsets of the MRF will be discussed in the same order as presented in the background information.

#### **B. INTERFUND BILLING**

At this point it is important to emphasize a problem with SPCC and DLA cognizance material which was addressed previously in background information. SPCC cognizance material as processed through the Navy intrafund billing process. Credits are "posted" to the fiscal year in which they are registered by SPCC. Conversely, DLA cognizance material is processed through the interfund billing process and credits are "posted" in the fiscal year in which FAADC registers the credit.

The problem arises because of the elapsed time before credit is authorized and received by the Type Commander. Credit must be received in time to obligate the funds before obligational authority expires at the end of the fiscal year. For DLA cognizance material, it is much easier to "predict" the receipt of funds at the TYCOM level because FAADC registers the credit and processes the funds transfer between

"buyer" and "seller". For SPCC cognizance material, SPCC registers the credit but the processing of funds transfer is accomplished at the FAADC. This adds an additional step which complicates the predictability and timing of fund processing. SPCC's estimated time to complete the MTIS processing was introduced in Chapter II (Figure 3). The timeline is reintroduced here in a slightly different format for comparison purposes (Figure 4).<sup>6</sup>

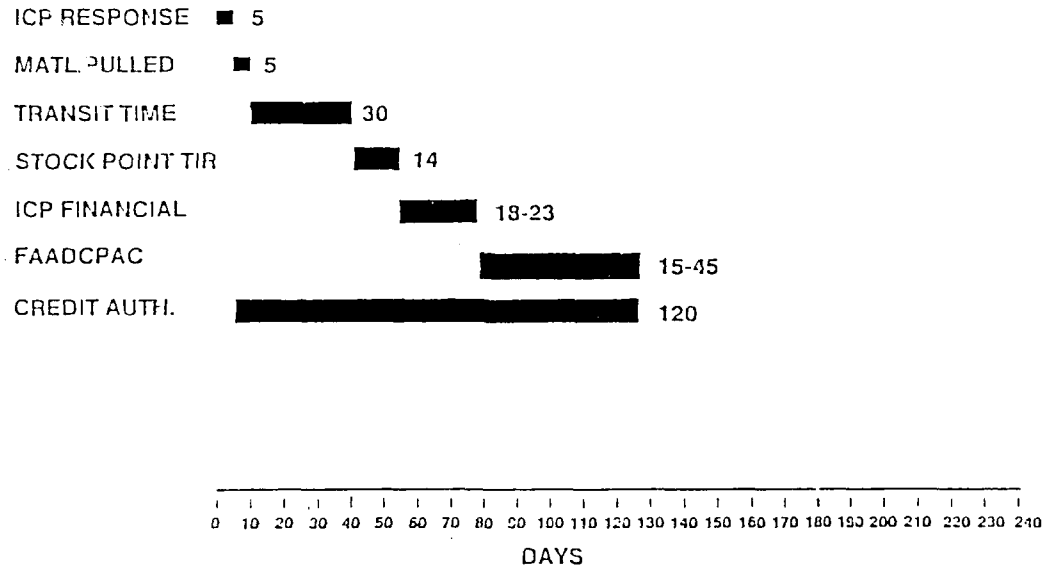
Figure 4 illustrates SPCCs' estimate of the MRP timeline from the moment the inquiry (offer to sell) is received by the ICP until credit arrives at the TYCOM (sell complete). Figure 5 illustrates PMOPAC observed processing times for material which was directed to be turned in to NSC Oakland. Similarly, Figure 6 illustrates PMOPAC observed processing times for material turned in at NSC Puget Sound. The combined message these figures present is the unpredictability of the time it takes to complete the process. PMOPAC is a tenant command of NSC Puget Sound so transit time was naturally expected to be lower. In either case, however, credit was not received in time to obligate the funds.

Interpretation of the observed time lines could lead one to the conclusion that FAADC was the primary "cause" of the processing delay. This is not a valid assumption. The UICP B015 (MTIS program) applications program does not provide

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<sup>6</sup>1988 Fleet Industrial Support Conference; Excerpt from SPCC MTIS Processing Time-line Event and Estimated Times to Complete.

SPCC MRP PROCESSING TIME LINE



SOURCE: SPCC 1988 FLEET AND INDUSTRIAL SUPPORT CONFERENCE

Figure 4. SPCC Estimate of the MRP Processing Time Line

# OBSERVED MRP PROCESSING TIME LINE (8032/8033)

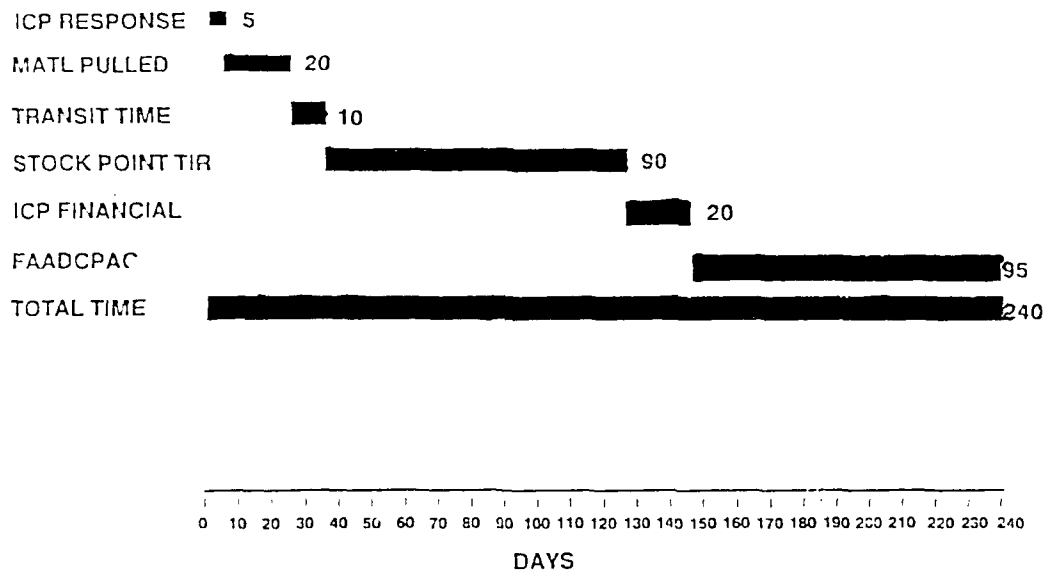


Figure 5. Observed MRP Processing Time Line (NSC Oakland)

# OBSERVED MRP PROCESSING TIME LINE (9060)

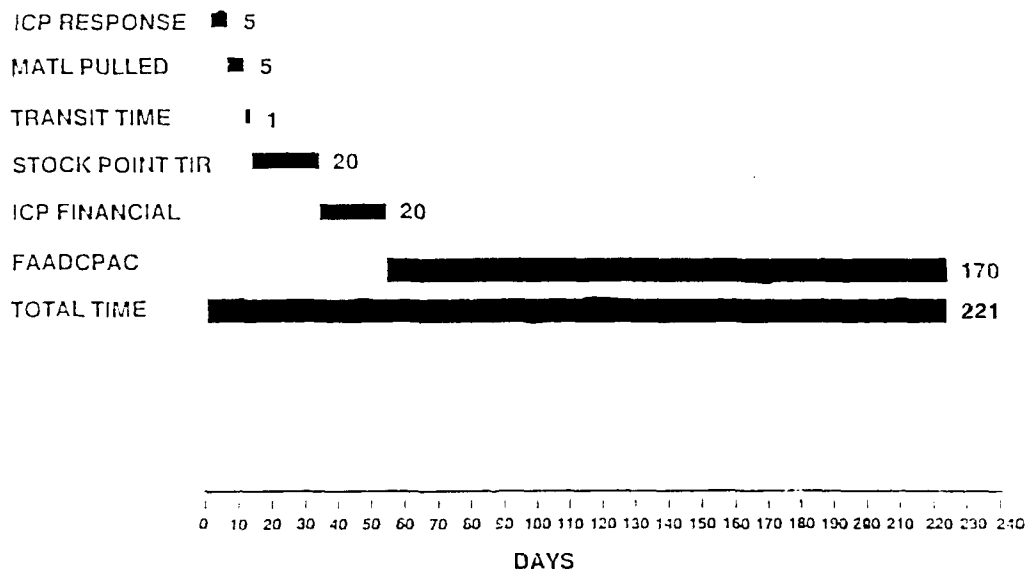


Figure 6. Observed MRP Processing Time Line (NSC Puget Sound)



"bill numbers" to FAADC. FAADC maintains records based on the bill numbers. Therefore, there is no simple way to follow-up or to obtain status on transactions passed from SPCC to FAADC. Hence, the inordinate delay between these two points in the MRP process. The plan was to correct this problem during the UICP Resystemization. Due to fiscal constraints, resystemization is on hold.

The impact on the Pacific Fleet Submarine Force is summarized in the following:

Given the fact that it takes an average of 220 days before COMSUBPAC realizes credit for an item turned in under the MRP, the problem of how to manage and properly expend credits which have either expired or will soon expire is particularly exasperating. The development of a counter productive 'gaming' situation then arises in which the fleet guesses when it is best to interrogate for credit and then hopes it guesses correctly. During the last two (2) years COMSUBPAC has lost \$683,000 in SPCC credits because the credits expired before they were received. This represents 12.7% of the total MRP credits authorized for the return of SUPER material." [Ref. 7]

Recommendation: SPCC use the interfund billing process for material processed via the MRP program and modify UICP B015 to assign bill numbers to items processed in order to provide a means of tracing the item between SPCC and FAADC. It should be noted that if this recommendation is made, consideration must be given to the impact on Shipboard Uniform Automated Data Processing System 207 (SUADPS-207) reporting ships as they also report credits. Implementation of these two recommendations would help eliminate the unpredictability of "timing" the interrogation process. Use of the interfund

billing process will eliminate the uncertainty associated with one command (SPCC) registering the credit and another command (FAADC) actually processing the funds transfer with additional processing required in between. Assignment of bill numbers close the "loop" in the ability to trace the material through the MRP from point of interrogation to funds transfer.

#### C. CREDIT RETURNS POLICY

In a point paper addressed to the Fleet Industrial Support Conference, COMSUBLANT noted that during FY86 three Atlantic Fleet submarines turned in approximately \$7.7 million dollars worth of RFI material for TYCOM credit. As of 18 March 1987 credits amounted to \$400,000. This represents a 5.2 percent return on the dollar. COMSUBLANT further stated:

This rate of return is unacceptable. The stock fund is benefitting at the expense of the Fleet. [Ref. 8]

In a point paper addressed to the same FISC, Pearl Harbor Naval Shipyard states:

The shipyards receive credit from the NSF on only a small percent of the material returned. Therefore, current credit policy discourages return of material and encourages 'goldpiling'.

These are but a sampling, there were other point papers submitted that echoed this sentiment as well.

The NAVSUP reply to the point papers was: "...since the NSF is a 'break even' appropriation these increased credits would have to be financed by increased prices to all other NSF

customers. Overall existing policy is considered to achieve the desired goals and to be appropriate." [Ref. 9]

Again in 1988 the subject of the credit returns policy was an issue at the FISC. An issue paper dated 12 May 1988, prepared by SPCC Code 0411 states:

We have made significant progress in liberalizing existing credit return policies. Through short-term initiatives such as our manual review high-dollar no-credit decisions (which ignores unawarded purchase requests), our figures show an increase in credit granted from 5 percent to 35-40 percent on the dollar.

The recommendation by SPCC at this time was to continue with efforts to liberalize the "return for credit" policies and programs.

A year later, in 1989, the FISC again addressed the issues of the credit returns policy. In a credit policy statement dated 29 March 89, SPCC Code 0411 states: "Over the past 2 years the percent of dollar value of credit return has increased from 11 percent to 24 percent based on two policy changes."

PMOPAC stated they were experiencing a "6 cents on the dollar" credit return rate and recommended an across-the-board "75 cents on the dollar" policy. Naval Shipyard Portsmouth recommended full credit for all left-over material ordered in advance of scheduled ship maintenance on a "contingency" basis.

SPCC Code 0411 promulgated an issue paper on 12 May 89 stating:

DOD and Navy policy limit credit to requirements projected over a two year horizon to ensure credit is offered only for material which can be re-sold. NSY Portsmouth and PMOPAC recommendations are inconsistent with the current DOD/SUP policy. Furthermore they would jeopardize stock fund ability to procure/repair material we are selling.

A review of two credit interrogation processes by PMOPAC revealed the following data. On julian dates 8032/8033, PMOPAC offered approximately \$9 million dollars worth of excess material to the MRP process. The resultant return was 13.4% on the dollar. A year later on julian date 9060, PMOPAC interrogated the system with approximately \$9.5 million dollars worth of excess, and again the result was 13% on the dollar. In both instances, however, they were directed to return approximately 68% of the material offered at no credit.

Equally important is the fact that some commands are generating substantial savings through cost avoidance (i.e., filling a material requirement from their own excess versus "buying" the item through the supply system). PMOLANT generated \$7,502,100 in cost avoidance in FY89 and \$6,968,992 in FY90. This is over twice the amount received as credit for material turned into the Supply System. In addition, the Inactive Supply Ship Overhaul Team (ISSOT) at Oakland recently filled over 70% of the material shortages of a submarine going through an Integrated Logistics Overhaul (ILO) from their storage of excess material [Ref. 10].

The numerous point papers concerning the credit returns policy coupled with the analysis of two material processes by

PMOPAC support the conclusion that the credit returns policy does not provide the fleet a sufficient incentive for the return of excess material. It is also evident from cost avoidance data that there is a need for much of the material that is currently being denied credit.

Recommendation: Pursue a policy of granting an across-the-board return rate for RFI material, which still has weapons system applicability, that would be acceptable to the Type Commanders. It is beyond the scope of this thesis to generate the appropriate financial model that could balance the return rate with costs incurred by adapting this policy<sup>7</sup>. However, from the management perspective, incremental implementation of this policy would help balance the "flood" of excess material from the fleet. Once implemented, the process must be timely.

Possible advantages of this policy include:

1. Excess material is purged from the fleet.
2. A "predictable flow" of material could be realized and managed.
3. All excess material would now be "visible" within the supply system.
4. Procurement action could be delayed and/or cancelled for many items.

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<sup>7</sup>In establishing the rate of return, the possibility exists that an excessive rate may encourage fleet units to "over-order" spare parts. Therefore, consideration should be given to the trade-off between the appropriate incentive to return excess material and the potential adverse effects of an excessive rate.

5. All material that is currently being recorded as "cost-avoidance", by excess programs such as "SUPER" and SUBRATS", would be "sales" of the supply system.

6. Inventory management credibility for supply system stock would be increased.

Possible disadvantages include:

1. This policy may temporarily place the system in "long-supply".

2. It may create a temporary financial burden on the Navy Stock Fund.

3. Some Navy Stock Fund customers may be unduly penalized when the "price" of stock is increased with the surcharge that must be applied to offset increased outlays for excess.

It should be noted that the disadvantages listed here could be minimized by the incremental implementation addressed above. The "cleaning up" of the excess in the fleet should be perceived as a long-term process that will outweigh any short term burdens.

#### **D. DEPOT LEVEL REPAIRABLE (DLR) PACKAGING**

NAVSUP Depot Level Repairable (DLR) Newsletter, Volume 88-1, dated 1 June 1988 provides a brief explanation of policy concerning the return of DLR's.

Current policy states that material turned in as 'A' condition excess will be accepted only if certain inspection criteria are met. The material must be in an original manufacturer's package/container, or have been repackaged and properly documented by an approved repair activity. Any repackaging must conform to the proper method and level as called out by current instructions, and must be sealed and free from any abnormal physical damage when received by the stock point to ATAC Hub.

Material received not meeting this criteria is subject to reclassification to the appropriate code and will be processed accordingly. If there is any doubt on the part of the receiving activity concerning the condition code, policy dictates that the material will be stored in a NRFI condition (code E or F).

Constrained stowage on submarines has resulted in the common practice of removing DLR's from the shipping container and the quantity unit pack then stowing the material with only the inner barrier bag as protection. The most frequent type of packaging observed for DLR's was a thin foil wrap with a gummed label containing identification markings. Although this packaging meets MIL-B-131F standards, it is easily ripped or torn by normal handling and stowage. Under the existing rules, these DLR's must be declared NRFI. It was also observed that many afloat storekeepers are stapling receipt paperwork (DD 1348-1) to the packaging. The staples penetrate the packaging and renders the material NRFI. In trying to ascertain why this obvious error in handling was occurring, it was noted that neither NAVSUP Publications P-485, "Afloat Supply Procedures"; P-437, "MILSTRIP/MILSTRAP"; P-545 "Navy Stock Fund Depot Level Repairables Procedures Desk Guide"; nor the Storekeeper 3&2 Rate Training Manual, contain guidance for the proper handling of DLRs.

As of 3 Jan 90, COMSUBPAC has lost credit for the return of over \$300,000 in excess DLRs which were declared NRFI by the receiving stock point due to minor packaging discrepancies. In addition, over \$4 million in excess DLRs

were shipped directly to the ATAC Hub due to packaging discrepancies identified during initial SUPER material receipt inspection. [Ref. 7]

COMSUBPAC statistics by fiscal year are as follows: In FY89, 70 DLRs were rejected for minor packaging discrepancies out of 150 submitted. In FY90, 99 were rejected out of 330 submitted. Of the 99 rejected, approximately 80% was due to minor tears or staples in the packaging, 15% was due to material not being in original manufacturers packaging, and the remainder was due to missing manufacturers identification labels. COMSUBPAC has since provided guidance to their units on proper DLR handling and stowage. [Ref. 11]

Recommendations:

1. Pursue research for a reinforced DLR packaging that is less prone to rips or tears during normal handling.
2. Ensure DLR handling procedures are incorporated in supply publications.
3. Ensure fleet is properly trained on handling procedures and made aware of the scope of the current problem.
4. Inspect DLR handling procedures during normal Supply Management Inspections (SMIs).
5. Type Commanders research feasibility of funding the costs of verifying DLRs RFI and repackaging prior to turn-in for credit.<sup>8</sup>

Advantages expected from these recommendations are as follows:

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<sup>8</sup>A cost analysis was not completed for this recommendation.



1. DLRs not damaged by routine or inappropriate handling.
2. Taxpayers save money by avoiding DLR repair costs.
3. Type Commander earns credit for returning excess RFI DLRs.

Possible disadvantages include:

1. Reinforced DLR packaging may be cost prohibitive in the short-run.
2. Currently, the TYCOM has no assurance that funds expended to verify DLRs RFI and repackage will recouped up by the subsequent sale.

Implementation of the across-the-board rate of return, recommended earlier in this thesis, would alleviate this problem. Whether reinforced packaging is pursued or not is a financial question. Inclusion of DLR handling procedures in supply publications, fleet training on DLR handling, and including DLR handling procedures as an element of the SMI is a matter of effective management.

#### **E. CARCASS CREDIT**

The \$4 million worth of NRFI DLRs mentioned in Item D. above were immediately sent to the ATAC Hub. Carcass credit was not granted for this material because it was not processed through the credit interrogation module, UICP B015, as an end-user owned DLR. Material only passes through the UICP B015 as an end-use DLR if a project code of "RDE" is entered in card columns 57-59 of the DD 1348-1 turn-in document. There is conflicting guidance as to who is responsible for entering the

"RDE" in columns 57-59. NAVSUP P-485, P-545, and P-437 directs the end-user to leave CC 57-59 of the DD 1348-1 blank. NAVSUP P-437 states that the reporting stock point will insert the "RDE". Conversely, NAVSUP Depot Level Repairable (DLR) Newsletter, Volume 89-1, dated 1 March 1989, states that the end-user is responsible for entering "RDE" in cc 57-59 of the DD 1348-1. SPCC attempted a manual review of the 1411 DLRs worth approximately \$4 million. The result was approximately \$7,000 granted to the TYCOM [Ref. 12]. NAVSUP has taken action to correct this problem. An excerpt from NAVSUP message 071315Z OCT 89 states:

4. NAVSUP is reviewing RDE project code info in pubs 545, 437, and 485 to ensure consistency. Any requested changes will be incorporated into the next pub updates.

5. NAVSUP will also review receipt processing logic to ensure that RDE project code is automatically inserted during receipt processing of excess NRFI DLRs and that the transaction will be passed to UICP B015 for potential credit.

Recommendations: Ensure guidance is consistent across all authoritative publications. Until changes can be incorporated, NAVSUP should direct ATAC and/or the applicable stock points to insert "RDE" in cc 57-59 of the DD 1348-1 turn-in document. UICP B015 applications program will then process the material as an end-use DLR and the appropriate credit will be granted. It is understood that appropriate action may already be in process and the problems identified above may be corrected by the time this thesis is completed.

#### F. MATERIAL TURNED INTO STORES (MTIS) BACKLOG

The issue with the MTIS processing is the inconsistency of processing times. This inconsistency contributes to, or is the source of the problems identified in Items B and E above. Inconsistency in processing prevents the "seller" from accurately predicting the length of the "time-line" involved in the return of material. Therefore sellers tend to "hold" material collected during the current fiscal year until the new fiscal year, and then "dump" it into the system. This increases their probability of receiving funds in time to reobligate them before they expire at the end of the fiscal year. NSC Puget Sound reported an MTIS backlog of 2,600 line items at the end of September 1990 and a backlog of 13,075 at the end of October 1990 [Ref. 13], illustrating the large dump that occurs at the beginning of the fiscal year.

NSC Puget Sound expects an average of 10-20 days backlog at any given time. However, as Figure 7 illustrates<sup>9</sup>, the wide fluctuation that occurs over any given fiscal year, is verification of the claim that MTIS processing time lines are inconsistent. MTIS processing times also vary among the Stock Points. NSC Oakland reports a backlog of approximately one (1) year as of October 1990 [Ref. 14]. This was based on a backlog of 19,143 line items, four personnel assigned to work

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<sup>9</sup>Data used in the preparation for Figure 7 was compiled during a phone conversation between LT Eades, student, NPGS/Sue Madsen, NSC Puget Sound, Code 300.

LINE ITEMS IN BACKLOG	FY88	FY89	FY90
HIGH	6500	3415	2600
LOW	50	53	225
AVERAGE	1181	1071	883
PROCESSING BACKLOG (DAYS)			
HIGH	65	78	18
LOW	0	1	1
AVERAGE	18	23	12

Figure 7. NSC Puget Sound MTIS Processing Statistics

material, and an average of 77 line items processed per man-day. NSC San Diego reports approximately 38,000 line items in backlog at the end of FY90, or about 31 days of backlog [Ref. 15]. This is based on 1200 line items processed per day. However, at San Diego, estimates of MTIS backlog at the beginning of FY90 was 150 days and in prior years, estimates were as high as 200 days.

It should be noted that the variances in processing times and backlog are not a reflection on management policy or individual processors, but are merely a reflection of the inconsistency inherent in the MTIS process. Three examples that are indicative of situations that contribute to the problem are: unplanned operations, such as "Operation Desert Shield," draw resources away from MTIS processing to more urgent requirements associated with the "loading-out" of afloat units for deployment to the Middle East; decisions by a higher authority to decommission an aircraft carrier in San Diego will "overwhelm" the MTIS process as literally hundreds of thousands of line items are dumped into the system; and funding levels may not be commensurate with the manpower requirements needed to accommodate the highly fluctuating flow of MTIS material.

PMOPAC observed processing times, included in Figures 5 and 6 of this chapter, also illustrate variances in MTIS processing.

Recommendations: Promulgate policy concerning time limitations allowed at each stage of the MTIS process and accompany this with a Management Information System (MIS) for monitoring/management purposes. Implementation of this recommendation will not necessarily reduce the inconsistency of MTIS processing. Coupled with the recommendations provided in Items IV. B. and IV. E. above, however, it will ensure the fleet that credit is forthcoming. As the material enters the "queue" at the processing facility, current backlog divided by processing ability would give a reasonable estimate of the date credit could be expected. Consistent processing will also assist in the formulation and stabilization of the Credit Returns Policy discussed in Item IV. C. above.

In summary, this chapter has identified several fleet issues concerning the Material Returns Program. Each problem has been substantiated by fleet observations. The recommendations for improvement are considered a viable solution to pursue in order to help alleviate the burdensome challenges generated by decreasing defense budgets, increasing volume of excess material, and increased scrutiny of DOD inventory management policies.

## **V. SUMMARY**

The basis for researching the Material Returns Program was the apparent lack of sufficient incentives for fleet units to return excess material. This thesis has attempted to identify general weaknesses in the Material Returns Program and to make specific recommendations for improvement. However, each of the sub-elements discussed in this thesis are complex issues in and of themselves and should be considered as a topic of further research.

This thesis did not intend to reflect on management decisions or ability of any command, but rather to document the concern for the problem of excess material as observed from a fleet perspective. Hopefully, this thesis has served to attract interest to the Material Returns Program and to promote action to improve this process.

A summary of the recommendations presented in Chapter IV of this thesis are presented below.

### **A. INTERFUND BILLING**

1. SPCC adopt the interfund billing process.
2. Modify UICP B015 to assign bill numbers in order to provide a means of tracing material.

**B. CREDIT RETURNS POLICY**

1. Grant an across-the-board rate of return for RFI material which has weapon system applicability.
2. Implement the new policy in increments.

**C. DEPOT LEVEL REPAIRABLE (DLR) PACKAGING**

1. Research feasibility of reinforced DLR packaging.
2. Incorporate DLR handling procedures in supply publications.
3. Train fleet personnel on DLR handling procedures.
4. Inspect DLR handling procedures during routine SMIs.
5. TYCOMS research feasibility of funding the cost of verifying DLRs RFI and repackaging prior to turn-in for credit.

**D. CARCASS CREDIT**

1. Ensure guidance concerning material turn-in procedures is consistent across all authoritative publications.
2. NAVSUP direct ATAC or applicable stock points to insert "RDE" in cc 57-59 of the DD 1348-1 turn-in document, thus preventing potential loss of credit to end-users.

**E. MATERIAL TURNED INTO STORES (MTIS) BACKLOG**

1. Promulgate policy concerning time limitations allowed at each stage of the MTIS process.
2. Implement a Management Information System for monitoring/management of the policy.
3. Pursue consistency in MTIS processing.



Once the recommendations of this or other studies have been implemented, additional analysis should be conducted to ascertain whether or not the program is improving and to identify alternatives that may prove more beneficial.

#### **F. FURTHER RESEARCH**

Additional study is required in valuation methods of material in excess. Should DOD components amortize inventory over time, apply market value, use cost, etc.? This is a critical issue when cost/benefit decisions are made concerning disposition of excess material or in the determination of credit authorized.

Procurement and inventory management models deserve further study as well. Emphasis should be placed on maintaining "visibility" of DOD supply support throughout the life-cycle of the weapons system.

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